

ABSTRACT OF THE DISCLOSURE

A wireless computer data network includes several untethered mobile units that make ad-hoc data connections with an Internet-connected base station using the IEEE-802.11a standard. Each unit includes a radio transceiver fully integrated on a single semiconductor chip. The receiver portion is a double-conversion superheterodyne type, and shares the same intermediate and local oscillator frequencies with a two-stage up-conversion transmitter. Two on-chip synthesizers that each include a voltage-controlled oscillator and phase-locked loop can be operated independently for each conversion stage, or operated in offset mode. External reference frequencies can be injected for voltage-controlled oscillator and phase-locked loop testing, chip characterization, and automatic compensation modeling. Each mobile and base unit can be outfitted with transmit/receive antenna transfer switches, RF-power amplifiers, and low-noise receiver amplifiers to increase operating range.